FURUNO

OPERATOR'S MANUAL

SSB RADIOTELEPHONE

MODEL FS-1552

This manual contains only operating information. For other information, please refer to the following manuals:

- Installation ········ Installation Manual
- Servicing ········· Service Manual

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⚠ SAFETY INSTRUCTIONS

"**DANGER**", "**WARNING**" and "**CAUTION**" notices appear throughout this manual. It is the responsibility of the operator of the equipment to read, understand and follow these notices. If you have any questions regarding these safety instructions, please contact a FURUNO agent or dealer.

⚠ **DANGER**	This notice indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

⚠ **WARNING**	This notice indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

⚠ **CAUTION**	This notice indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury, or property damage.

⚠ DANGER



This equipment contains **high voltages** in the transceiver unit and the antenna couple unit. These voltages are sufficient to kill anyone coming in direct contact with them.

Any internal adjustment, servicing and repair shall only be preformed by qualified servics personnel.

A residual charge remains in capacitors and other devices serveral minutes after turning off the power. Wait **at least 3 minutes** to allow residual chege to disappear.



Wear a safety belt and a hard hat when working high up on the mast or close to the radar antenna.
Do not look into the radar antena at a close distance.
Stop the radar while working with the radiotelephone antenna.

HIGH TENSION HAZARD.
DO NOT TRANSMIT WHEN ATU IS OPENED.

⚠ WARNING

EARTHING
Secure grounding wires on Transceiver Unit, Antenna Coupler Unit, Power Unit. This serves to reduce the risk of electrical shocks in case the high tension parts are shorted to the metallic cabined or covers, as well as improving receiver sensitivity and transmitter efficiency.

⚠ CAUTION

Restriction to use MF/HF Radiotelephone in U.S.A.:
Ship stations authorized to use both 2,000-27,500 kHz and 156-162 MHz bands must not use frequemcies in the 2,000-27,500 kHz band within the VHF service range. (US CFR 47, §80.367f)

Silence period
Do not transmit any signal if you are not in an emergency situation during the silence peried, 00 to 03 min and 30 to 33 min of every hour.

Introduction

Foreword

FURUNO Electric Company thanks you for selecting the FS-1552 SSB Radiotelephone. We are confident you will discover why FURUNO has become synonymous with quality and reliability. To get maximum performance from your unit, please carefully read and follow the recommended procedures for operation and maintenance.

The FS-1552 is an all-purpose communications transceiver especially designed for marine mobile communication in the frequency range of 1.6 to 26.2 MHz. All ITU channels are preprogrammed. If required, TX/RX frequencies can be preprogrammed into a E^2 PROM having a capacity of 200 frequency pairs.

The FS-1552 consists of a Transceiver Unit, an Antenna Coupler, and a Handset.

About this manual

This manual mainly consists of two sections: PART 1 (Operation) and PART 2 (Maintenance).

Contents of PART 1

1. Controls and Indications
2. Operational Overview
3. Operation with Optional Equipment
4. Changing the System Settings

Contents of PART 2

1. Testing
2. Maintenance
3. Troubleshooting
4. Replacement of Fuses

Specifications

ITU SSB Frequency Table

Refer to the "Table of Contents" at the beginning of each section for detailed information on section contents.

Notice to FURUNO service agent or dealer:

- Installation information is contained in the Installation Manual.
- System initialization after installation is described in the Service Manual.

Features

- 2182 key provides for immediate selection of 2182 kHz (at FULL power automatically)
- Scan/Sweep receiving function
- PROM stores all ITU SSB and TELEX frequencies
- Optional dummy load (in the Antenna Coupler) permits checking of transmitter
- Effective noise blanker cancels pulse noise
- Advanced "voice" detecting type squelch circuit filters out noise
- Remote station (RB-500) optionally available
- Self test

Notes

1. Use a battery having sufficient capacity (more than 120 AH). Otherwise, battery cannot provide ample transmission power.
2. Handle the microphone carefully. Heat, humidity and shock will affect performance.
3. Do not adjust the potentiometers inside the units. Improper adjustment may cause serious damage.

Availability of TX Frequency Selection Methods

The availability of TX frequency selection methods depends on model type. There are three model types: Standard, Holland and Italy. The table which follows shows the availability of TX frequency selection methods for those model types.

TX Frequency Selection	Type		
	Standard	Holland	Italy
Manual entry	available (on marine band)		not available
ITU channel	available		not available
User channel	available		

Channel/Frequency Indication

The FS-1552 displays either channel or frequency of ITU/User channels depending on model types.

	Type		
	Standard	Holland	Italy
Indication	channel	frequency	channel

NOTE: *When the FREQ/CH encoder is used to change a channel (or frequency) on the LCD, the channel (or frequency) disappears and the frequency (or channel) appears instead momentarily.*

The descriptions in this manual show channel indication mode (Standard and Italy types).

2182 kHz Distress Calling

Introduction

For distress or emergency call, transmit 2182 kHz signal, modulated by two-tone, then call for help on 2182 kHz.

Procedure

1. Press the **2182** key. 2182 kHz and class of emission H3E are automatically selected.

NOTE: *When the* **2182** *key is pressed, the following are set automatically.*

Output power:	Maximum
Speaker:	On
Squelch:	Off

2. While pressing and holding down the **ALARM** key, press the **ENT** key. The alarm sounds from the speaker and ceases automatically after 45 seconds. The alarm may be cancelled at any time by pressing the **ENT** (stop) key.

3. Speaking slowly and distinctly, say "**MAYDAY, MAYDAY, MAYDAY**. This is ... " giving the name of your vessel and call sign three times. Then, continue with the distress message, as follows.

4. The name of your vessel.

5. Position.

6. The assistance needed.

7. A description of your vessel (type, color, number of persons aboard, etc.)

8. Indicate end of message by saying, "Over."

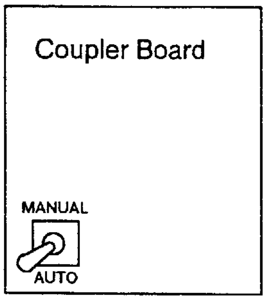
In the Event of Antenna Coupler Failure

Introduction

The antenna tuning circuit in the Antenna Coupler automatically tunes a wire or whip antenna. When the tuning cannot be completed for all frequencies, TUNE OK doesn't appear on the LCD. This means the coupler cannot be tuned automatically. In this case, you can communicate on 2182 kHz by tuning the coupler manually.

Procedure

1. Remove the cover of the Antenna Coupler.
2. Set the **MANUAL-AUTO** switch to the MANUAL position.



3. Replace the cover.
4. Turn the FS-1552 on and select 2182 kHz.
5. Call a coast station and tell your situation. Be sure not to transmit during silent period (00 to 03 min. 30 to 33 min. of every hour).

PART 1

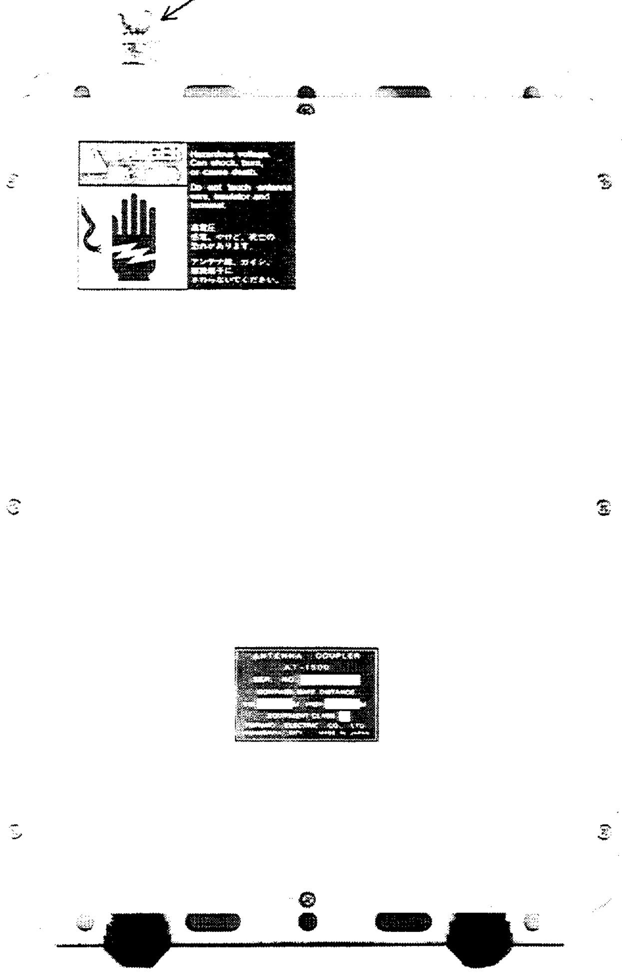
1. Controls and Indications
2. Operational Overview
3. Operation with Optional Equipment
4. Changing the System Settings

PART 1 Table of Contents

1. Controls and Indications

Antenna Coupler

Antenna Terminal

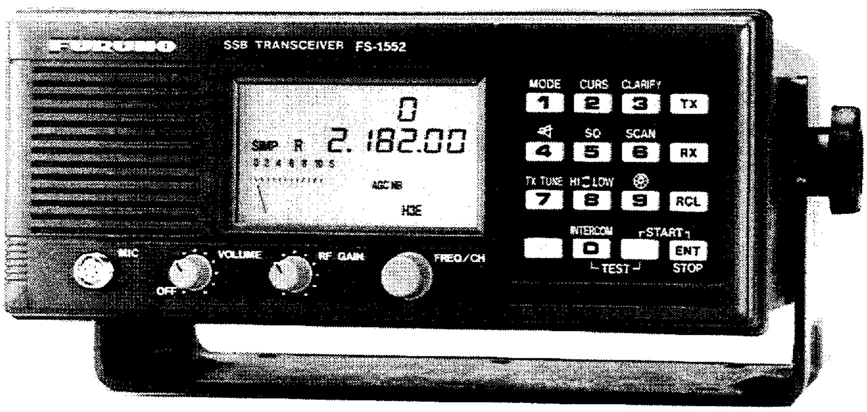


DANGER

Do not touch antenna wire, insulator or terminal.
High voltage which can shock, burn or cause death exists at those points.

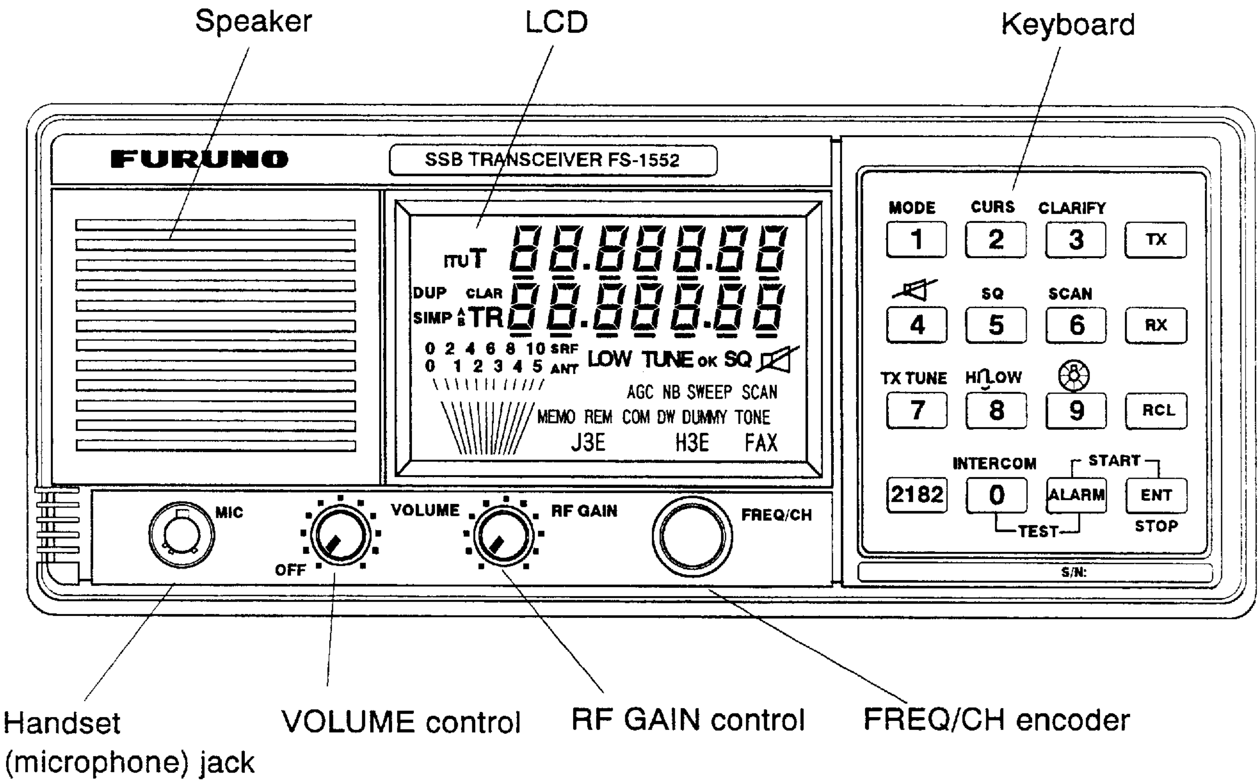
Main Unit

Do not place objects on the top of the cabinet, to keep the unit cool.



Hanger

Panel



Speaker
LCD
Keyboard
FURUNO
SSB TRANSCEIVER FS-1552
MODE
CURS
CLARIFY
1
2
3
TX
SQ
SCAN
4
5
6
RX
TX TUNE
HI/LOW
7
8
9
RCL
INTERCOM
START
2182
0
ALARM
ENT
TEST
STOP
S/N:
MIC
VOLUME
OFF
RF GAIN
FREQ/CH
ITU T
DUP
CLAR
SIMP
TR
LOW TUNE OK SQ
AGC NB SWEEP SCAN
MEMO REM COM DW DUMMY TONE
J3E H3E FAX
Handset
(microphone) jack
VOLUME control
RF GAIN control
FREQ/CH encoder

Controls

VOLUME	Turns the power on and off and adjusts speaker volume.
RF GAIN	Adjusts receiver sensitivity.
FREQ/CH	Changes frequency and selects channel number.

Keys

MODE	Selects a class of emission and controls AGC on and off.
CURS	Shifts cursor.
CLARIFY	Adjusts RX frequency in User or ITU channel mode. The factory-set adjustable range is ±150 Hz in 10 Hz steps. (For AM the width is fixed at ±5kHz, 100 Hz steps.)
TX	Selects a TX frequency.
(speaker)	Turns the internal or external speaker on or off. The speaker mark appears on the display when the speaker is off.
SQ	Turns the squelch function on or off. "SQ" appears on the display when the squelch function is on.
SCAN	Turns the scan function on or off. "SCAN" appears on the display when the scan function is on.
RX	Selects an RX frequency.
TX TUNE	Tunes the antenna coupler. "TUNE" appears during tuning, and "OK" appears after tuning is successfully completed.
HI⇄LOW	Alternately selects high and low output power.
(dimmer)	Adjusts backlighting of keyboard and LCD.
RCL	Selects ITU channel or User channel.
2182	Selects 2182 kHz.
INTERCOM	Calls "remote station" (if connected). Press this key, enter station no. and then press the **ENT** key.

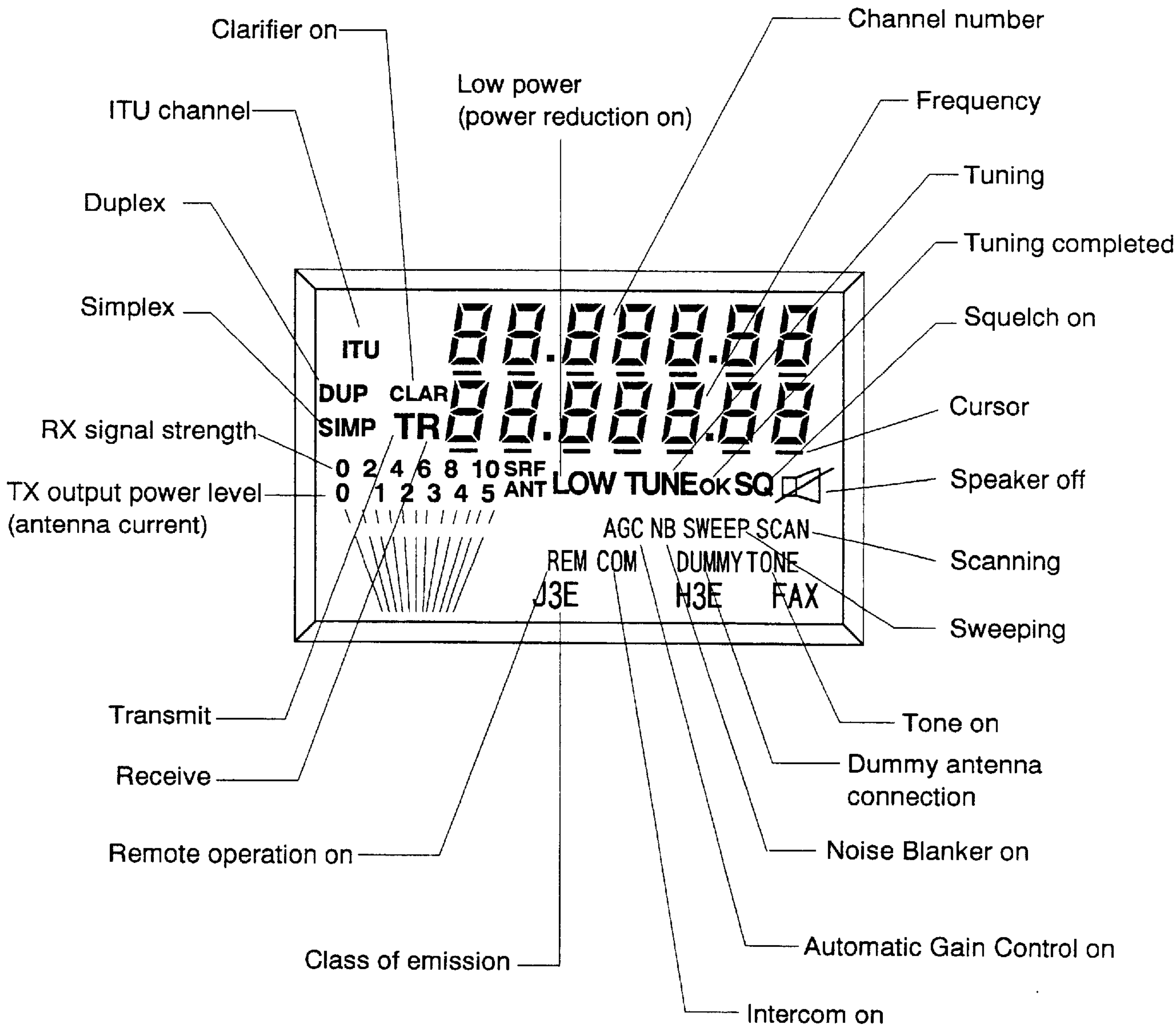
ALARM Releases two-tone alarm for 45 seconds. To suspend it, press this key again. To transmit the alarm, press the **ENT** key while pressing and holding down the **ALARM** key. (Refer to page iv.)

ENT Terminates data entry.

1-0 keys Enter numeric data.

Indications

The LCD provides various marks and indications which show operational status. The figure below shows the location and meaning of each mark and indication.



2. Operational Overview

2.1 Basic Operation

Turning the power on or off/adjusting speaker volume

To turn on the power, turn the **VOLUME** control clockwise until you hear a click. Further clockwise rotation of the control raises speaker volume. To turn off the power, turn the control fully counterclockwise until you hear the click.

Adjusting the backlighting

The **dimmer** (⊛) key adjusts the backlighting for the LCD and the keyboard. Each time the key is pressed, the backlighting changes in the sequence of high, medium, low and off.

Turning the loudspeaker on or off

When you are using a handset and therefore do not require the internal or external speaker, you can turn it off by pressing the **speaker** (speaker symbol) key. The "speaker off mark" (speaker symbol) appears when the speaker is off.

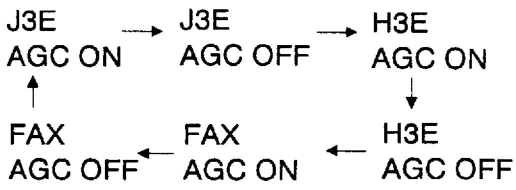
Turning the squelch on or off

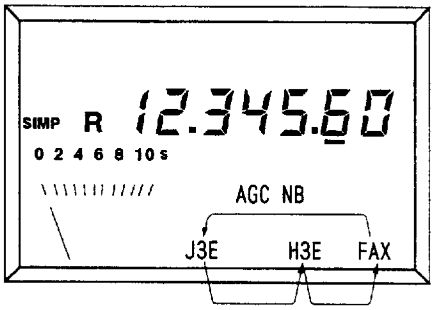
The squelch mutes the audio output in the absence of an incoming signal. Each time the **SQ** key is pressed, the squelch is turned on or off.
When radio noise is too jarring during stand-by condition, it may be muted by activating the squelch. "SQ" appears when the squelch is on.

NOTE: *The squelch cannot be turned on in class of emission FAX; "SQ" blinks.*

Selecting class of emission/ turning AGC on or off

The **MODE** key selects class of emission and turns the AGC on or off. Each time the key is pressed, class of emission changes and AGC is turned on or off in the following sequence. "AGC" appears on the LCD when AGC is on.





Indication	Class of Emission	Purpose
J3E	J3E(USB)	SSB radiotelephone
	J3C	Ship-to-ship facsimile
H3E	H3E	Calling coast station on 2182 kHz (equivalent to AM)
FAX	F3C	Reception for weather facsimile

2.2 Selecting Frequency

Frequency can be selected by;

- manual entry
- recalling User channel, or
- recalling ITU channel.

NOTE: *User channel programming should be done by an authorized FURUNO agent or dealer.*

Manually entering a frequency

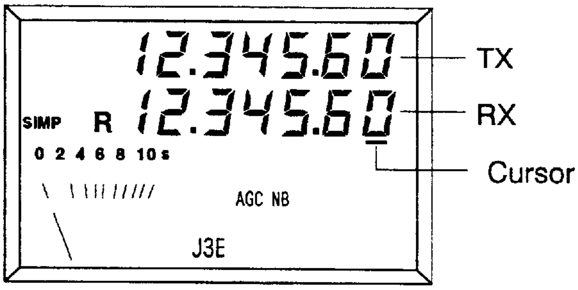
Any frequency on marine bands can be manually entered through the keyboard.

To manually enter 12345.6 kHz, for example;

<u>**RX only**</u>
Press **RX, 1, 2, 3, 4, 5, 6**, and **ENT** in this order.

<u>**TX only**</u>
Press **TX, 1, 2, 3, 4, 5, 6**, and **ENT** in this order.

<u>**Both RX and TX**</u>
Press **RX, TX, 1, 2, 3, 4, 5, 6**, and **ENT** in this order.



■ The **CURS** key shifts the cursor among last 4 places.
■ The **FREQ/CH** encoder changes number above the cursor.

User channel mode

200 user channels can be stored. You can recall them through the keyboard or by operating the **FREQ/CH** encoder.

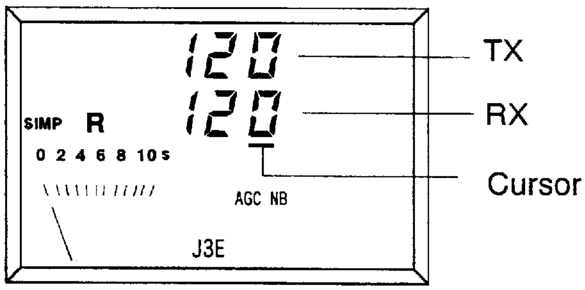
NOTE: *User channel programming should be done by a FURUNO service agent or dealer.*

To recall user channel 120, for example;

TX only
Press **TX, RCL, 1, 2, 0,** and **ENT** in this order.

RX only
Press **RX, RCL, 1, 2, 0,** and **ENT** in this order.

Both TX and RX
Press **RCL, 1, 2, 0,** and **ENT** in this order.



- The **CURS** key shifts the cursor to band or channel number.
- The **FREQ/CH** encoder changes number above the cursor.

ITU channel mode

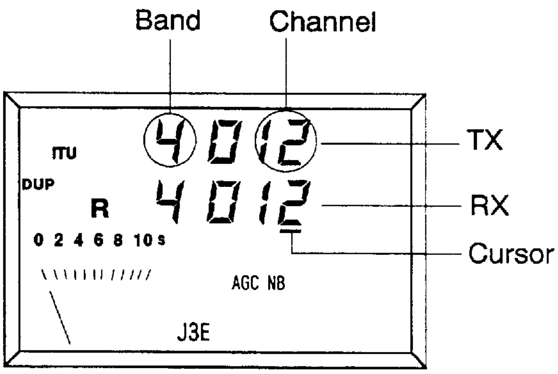
ITU SSB channel is stored in the FS-1552. You can recall them through the keyboard or by operating the **FREQ/CH** encoder.
First select emission mode, and then select a channel.

To recall ITU SSB channel 412, for example, select J3E with the **MODE** key, then;

TX only
Press **TX, RCL, 4, 1, 2** and **ENT** in this order.

RX only
Press **RX, RCL, 4, 1, 2** and **ENT** in this order.

Both TX and RX
Press **RCL, 4, 1, 2** and **ENT** in this order.



- The **CURS** key shifts the cursor to band or channel number.
- The **FREQ/CH** encoder changes number above the cursor.

NOTE: *You can recall an ITU channel by entering either 3 or 4 digits (401 or 4001).*

2.3 Reception

Introduction

To receive a signal, in most cases, select an RX frequency by using one method among the three mentioned on the page 2-4 in PART 1.

Adjusting RF gain

In normal use the **RF GAIN** control is set for maximum. If the audio of a transmitting station is unclear or there is noise mixed with other signals, however, adjust RF gain to pick up wanted signal only.

Clarifying a receive signal

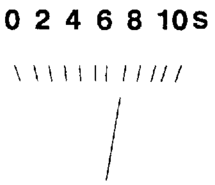
If reception is unclear, try to clarify the signal as follows. For manual entry of frequency, simply turn the **FREQ/CH** encoder to fine tune frequency.

Procedure

1. Press the **CLARIFY** key. (The cursor, which was located under the channel number, automatically moves under the 10 Hz place.)
2. Turn the **FREQ/CH** encoder to change (fine tune) the frequency.
3. To terminate this operation, press the **CLARIFY** key again. The cursor returns to the channel number.

NOTE: *The clarify width can be set, by an authorized FURUNO agent or dealer, for ±100 Hz or ±150 Hz (factory setting: ±150 Hz) on system setting menu 9921. Note however that the width on AM is fixed at ±5 kHz (100 Hz steps).*

Monitoring RX signal strength



During reception the pointer indicates relative signal strength.

NOTE: *The noise blanker is, in the factory setting, always on.*

Watching on TX frequency

When a duplex channel is selected, TX frequency can be watched as follows.

Procedure

While pressing and holding down the **RX** key, press the **ENT** key. The FS-1552 starts watching on TX frequency. After 3 seconds, it automatically returns to previous state.

2.4 Transmission

Introduction

After selecting class of emission and frequency, you can transmit by pressing the PTT switch of the handset. Output power is shown on the ANT meter.

Tuning the antenna

The transmitter in the transceiver can deliver full power to the antenna only when antenna impedance and transmitter impedance match. Because antenna impedance changes with frequency a means must be provided to match (tune) antenna impedance with transmitter impedance (50 ohms). This is the job of the antenna coupler. The antenna coupler is automatically tuned when one of the following is pressed:

- the **PTT** switch on the handset
- the **TX TUNE** key on the front panel

After one of the above is pressed;

1. "TUNE" appears on the display.
2. Tuning should be completed within 2 to 15 seconds for a newly used frequency, or less than 0.5 seconds for a memorized frequency. *(A built-in*

memory remembers coil and capacitor settings.)

3. When the tuning process is successfully completed "OK" appears.

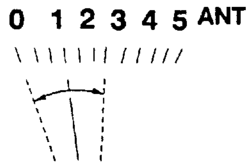
Using the handset

Hold the handset close to your mouth, press the **PTT** switch and speak clearly.

Monitoring transceiver output power

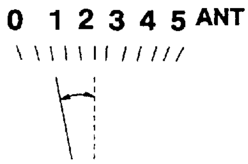
During transmission the pointer deflects according to transceiver output power.

J3E



After pressing the PTT switch, the pointer deflects rightward with loudness of your voice.

H3E



The pointer deflects slightly when the PTT switch is pressed, and deflects rightward with voice level.

NOTE: *The LCD shows "antenna current". The pointer deflecting range differs by frequency or antenna length.*

Reducing transmitter power

To conserve electricity and to minimize interference to other stations, reduce transmitter power. This can be done when using the transceiver in a harbor, near the shore or close to communication partner (other ship), since you are probably close enough to the receiving station to make the call in reduced power. Each pressing of the **HI LOW** key selects high or low output power. "LOW" appears on the display when low output power is selected.

2.5 Scan/Sweep

Scan

For scan operation, the AGC function should be ON.

The receiver watches a User or ITU channel in order. The scan stop signal level and scan stop time can be changed on system channels 9951 and 9952, respectively. For further details, see page 4-1.

Procedure

1. Recall User or ITU channel.

   User channel

   User channel is divided into 20 groups in the scan mode. The FS-1552 scans channels in the scan group shown below.

Scan Group	User Channel No.
1	1 to 10
2	11 to 20
3	21 to 30
4	31 to 40
5	41 to 50
6	51 to 60
7	61 to 70
8	71 to 80
9	81 to 90
10	91 to 100
11	101 to 110
12	111 to 120
13	121 to 130
14	131 to 140
15	141 to 150
16	151 to 160
17	161 to 170
18	171 to 180
19	181 to 190
20	191 to 200

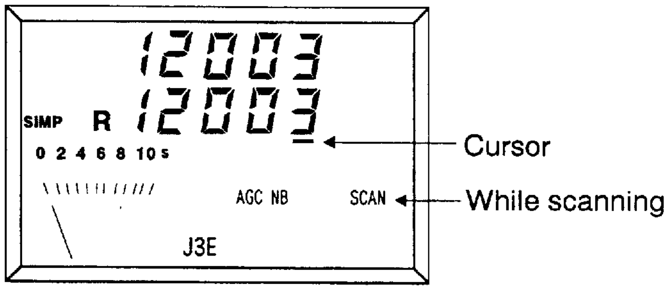
   ITU channel

   To select the scan group (band or channel), shift the cursor to either the position of the band or channel number by pressing the **CURS** key.

   (Band scan is useful to watch on a same channel in different bands.)

2. Press the **SCAN** key. "SCAN" appears and the receiver starts scanning.

For example, scan group is “channel” and scan starts from ITU 1203;

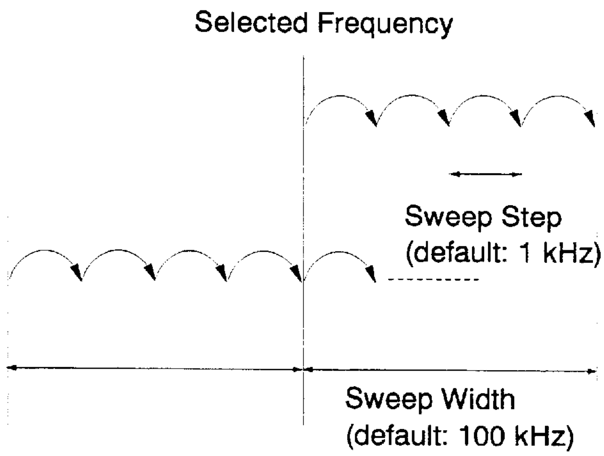


3. To stop scanning, press the **SCAN** key or the **PTT** switch. “SCAN” disappears from the LCD.

Sweep

For sweep operation, the AGC function should be ON.

The receiver watches a frequency which is changed by a sweep step frequency.
The sweep step frequency and sweep width can be changed on system channels 9954 and 9953, respectively. For further details, see page 4-1.



NOTE: *Sweep width is the frequency width to sweep on both sides of the selected frequency.*
Sweep step frequency is the frequency interval at which the receiver scans the sweep width.

Procedure

1. Select a center frequency of sweep by manually entering a frequency.
2. Press the **SCAN** key. “SWEEP” appears and the receiver starts sweeping.
3. To stop sweeping, press the **SCAN** or the **PTT** switch. “SWEEP” disappears from the LCD.

3. Operation with Optional Equipment

3.1 Intercom (Intercommunication System)

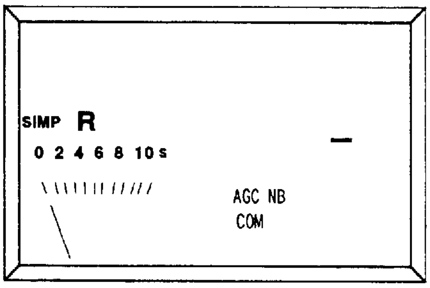
Introduction

The intercom provides communication between the FS-1552 and the RB-500 Remote Station (option).

Calling the RB-500

<u>Procedure</u>

1. Press the **INTERCOM** key. "COM" appears.



2. Press the **1** key, then press the **ENT** key. The calling buzzer (PiPiPi) on the FS-1552 sounds. The buzzer stops when the handset of the RB-500 is picked up.

3. Press the **PTT** switch to talk. Release the switch to listen.

Calling from the RB-500

When the FS-1552 is called from the RB-500, the FS-1552 releases the calling buzzer.

<u>Procedure</u>

1. Press the **ENT** key to silence the buzzer.
2. Press the **PTT** switch to talk. Release the switch to listen.

Terminating the intercom

Press the **INTERCOM** key to terminate intercom function. "COM" disappears.

3.2 Remote Station Operation

Priority

The Remote Station usually has higher priority than the FS-1552. This means that operation of the FS-1552 is disabled when the handset of the RB-500 is picked up.

Communication on 2182 kHz

When 2182 kHz is selected by the **2182** key of the FS-1552, the FS-1552 takes priority.

"REM" indication

When the RB-500 is in operation, "REM" appears on the LCD of the FS-1552.

4. Changing the System Settings

4.1 What are the System Channels?

The “system channels” allow the operator to customize the FS-1552 according to local regulation or preference. The table which follows shows the system channels and their function, setting range and factory setting.

CH No.	Function	Setting Range 0	1	2	3	Factory Setting
9951	Scan stop signal level	SQ level	1 – 10			3
9952	Scan stop time	RX	1 – 99 sec.			2
9953	Sweep width	0.01 – 30000.00 kHz				100.0
9954	Sweep step frequency	0.01 – 30000.00 kHz				1.00
9955	Squelch activation	Voice	Level	And	Or	3
9956	Squelch level		0 – 10 for level			5
9957	Squelch delay time		500 – 4000 ms			1000
9958	Squelch activating frequency		500 – 2000 Hz			1000
9959	Squelch on/off when 2-tone alarm on 2182 kHz is received	Off	On			0
9999	This channel is for service technicians. Do not change the setting.					

9951

Scan stop signal level

When the receiver detects a signal whose level is stronger than the preset level it stops scanning and receives the signal. The setting on system channel 9955 is available only when “0” (SQ level) is selected here.

9952

Scan stop time

When a signal is detected, the receiver stops scanning and keeps receiving for the time selected here. When “0” (RX) is selected, the receiver keeps receiving while detecting a signal.

9953/9954

Sweep width/Sweep step frequency

Refer to page 2-11 in PART 1.

9955/9956/ 9958

Squelch activation/Squelch level/Squelch activating frequency

“Squelch activation” is the method by which the squelch is activated. You can set the method on system channel 9955.

Voice: The squelch is activated by frequencies less than 1000 Hz (factory setting). This frequency can be changed between 500-2000 Hz on system channel 9958.

Level: The squelch is activated depending on “signal strength”. The factory setting is “5”. You can change the level between 0-10 on system channel 9956.

And: The squelch is activated only when both “voice” and “signal strength” are satisfactory.

Or: The squelch is activated by either “voice” or “signal strength”, whichever is satisfactory.

9957

Squelch delay time means squelch recovery time after the signal (voice) has gone.

(Ex) 9957: 1000ms

Squelch is opened 1000 ms after the signal goes away.

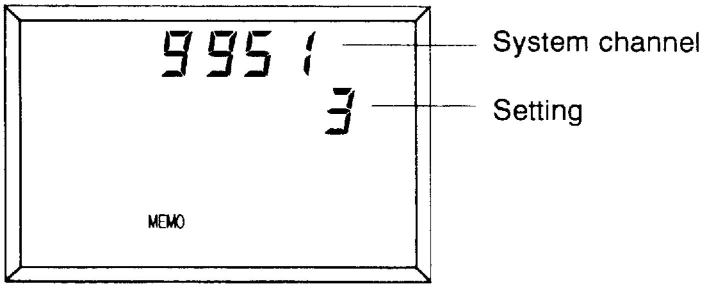
9959

Squelch can be turned on when two-tone alarm on 2182 kHz is received.

4.2 Changing the System Settings

Procedure

1. While pressing and holding down the **RCL** key, turn on the power. Release the **RCL** key when the following display appears.



2. Turn the **FREQ/CH** encoder to select a desired channel number.
3. Press the **RCL** key, enter desired setting by number key, then press the **ENT** key.
4. To change another channel setting, repeat steps 2 and 3.
5. Turn off the power, then turn it on.

CAUTION: *FURUNO Electric Company will assume no responsibility for the inconvenience or disturbance to communications due to inadequate or unlawful presetting of this equipment.*

PART 2

1. Testing
2. Maintenance
3. Troubleshooting
4. Replacement of Fuses

PART 2 Table of Contents

1. Testing

1.1 Weekly Test (required by SOLAS)

Introduction

While underway, check the radiotelephone **weekly** for proper operation.

Aural testing

Procedure

1. Press the **ALARM** key to generate the alarm. Confirm that the two-tone alarm is released for more than 30 seconds.
2. Press the **ALARM** or **ENT** (stop) key to stop the test. Confirm that the alarm turns off.

Testing the transmitter by dummy antenna (option)

Procedure

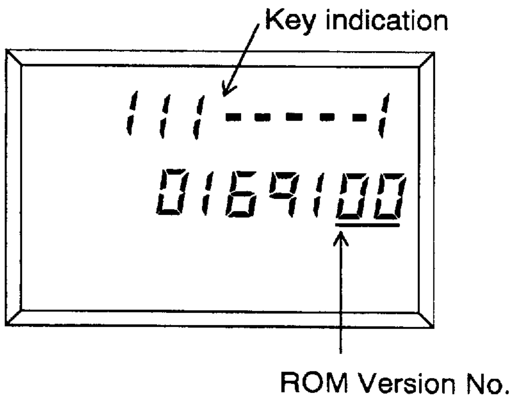
1. While pressing and holding down the **ALARM** key, press the **0** key. The dummy antenna in the antenna coupler, if mounted, is connected to the FS-1552 instead of the antenna. "DUMMY" appears and the test signal of the 2191kHz, modulated by two-tone alarm, is emitted to the dummy load for 45 seconds.
2. To suspend emission, press the **ALARM** key.

1.2 LCD/Keyboard Test & ROM Version No. Confirmation

Procedure

1. While pressing and holding down the **ENT** key, turn on the power. All LCD segments appear.
2. Release the **ENT** key.
3. Press keys one by one. Check the indication on the upper hand-side of the LCD referring to the table below.

(Ex.) The **2** key is pressed.



All LCD segments reappear several seconds after the **2** key is pressed

Key	**1**	**2**	**3**	**TX**
Indication	0	1	2	3
Key	**4**	**5**	**6**	**RX**
Indication	4	5	6	7
Key	**7**	**8**	**9**	**RCL**
Indication	8	9	A	b
Key	**2182**	**0**	**ALARM**	**ENT**
Indication	C	d	E	F

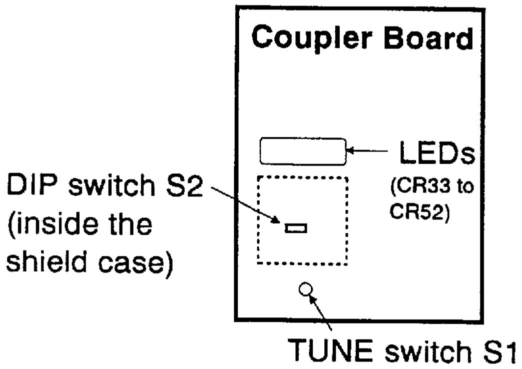
1.3 Antenna Coupler Test

The CPU and the relays which select capacitors and coils for tuning can be checked.

Procedure

1. Open the antenna coupler cover.
2. Open the shield cover inside the coupler.
3. Turn on no. 2 of the DIP switch S2.
4. Press the TUNE switch S1 in the antenna coupler.
5. The 20 LEDs (CR33 to CR52) light one by one for 1 second each. Then they brink all at once when the test is over.

LEDs and corresponding relays are as fellows.



CR 33	K3	CR 43	K14
CR 34	K4	CR 44	K15
CR 35	K5	CR 45	K16
CR 36	K6	CR 46	K17
CR 37	K7	CR 47	K18
CR 38	K8	CR 48	K19
CR 39	K9	CR 49	K20
CR 40	K10	CR 50	K21
CR 41	K11	CR 51	K13
CR 42	K12	CR 52	K22

6. Turn off no. 2 of the DIP switch S2.
7. Close the covers.

Note: Ensure that all switches of DIP switch S2 are set to "OFF" position before you close the cover.

2. Maintenance

Introduction

This radio is designed and manufactured to provide years of trouble-free performance. Without regular maintenance, however, no machine can perform its intended functions. A regular maintenance program should be established and should at least include the items listed in Table 2-1.

Table 2-1 Recommended maintenance program

Item	Check Point	Remedy/Remarks
Whip antenna	Check for physical damage, corrosion and water leakage.	Replace damaged parts.
Wire antenna	Check that antenna is properly spanned and separated sufficiently apart from metal structures.	If necessary, re-span antenna.
Insulators	Check for salt water accumulation on insulators. Check that connection at lead-in insulator is tight and rust-free.	Replace damaged insulators. Remove salt water deposits with fresh water. Remove rust, then tighten bolt and lock nut. Cover metallic surface with sealing compound.
Antenna coupler	Check contact at * Antenna terminal * Ground connection * Coaxial cable * Control cable (terminal board). Check that coupler lid and cable glands are firmly secured. Check for physical damage, corrosion and salt water deposits.	Tighten loosened connections. Fasten lid firmly and evenly to prevent water leakage. Replace if damaged.
Transceiver	Check contact at * Antenna cable * Ground connection * Power cable * Control cable Confirm that there are no objects on the top of the cabinet.	Tighten loosened connections; remove foreign material from connectors. Remove objects to prevent overheating.

(continued on next page)

Item	Check Point	Remedy/Remarks
Power supply	Check that supply voltage at transmission is within the rated range. (10.8 to 15.6 VDC at the power connector)	If not within the range, call for service. Low voltage may cause erratic operation.
Power cable	Check for loosened or corroded connection at power terminals.	Clean and tighten.
Battery	Check that the battery is fully charged.	If discharged, charge.
Feeder (coax cable, control cable)	Check for physical damage.	Replace if damaged.
PCB connection	Check that jumper cables between boards are firmly connected.	Reconnect loosened connectors of jumper cables.
Handset	Check that handset connector is firmly fastened.	Fasten if loosened.

3. Troubleshooting

3.1 Troubleshooting List

Introduction

The troubleshooting list (below) gives common symptoms of equipment malfunction and the means to restore normal operation. If you cannot restore normal operation, please do not check inside any unit. Any repair is best left to a licensed radiotelephone technician. Improper handing or adjustment may cause more serious damage.

Table 3-1 Troubleshooting list

IF...	THEN...	ACTION
you can't turn on the power	the mains switchboard may be off.	Turn on the mains switch.
	the battery may have discharged, or poor contact at terminals.	Recharge battery and tighten terminal connections.
	check fuse on the power cable or AC-DC (or DC-DC) power supply unit.	If blown, replace.
frequency appears but no lamps light	the **dimmer** key may be off.	Operate the **dimmer** key.
power is on but no sound from speaker	the **speaker** key may be off.	Turn on the **speaker** key.
	volume may be too low.	Adjust the **VOLUME** control.
	squelch may be on.	Press the **SQ** key if "SQ" appears on the display.
you can't clarify SSB signal	wrong class of emission may be in use. (For example, receiving SSB signal in H3E mode.)	Select class of emission same as that of incoming signal.
	frequency may have detuned.	If USER or ITU channel receive mode, press the **CLARIFY** key then fine tune frequency by the **FREQ/CH** encoder.

(continued on next page)

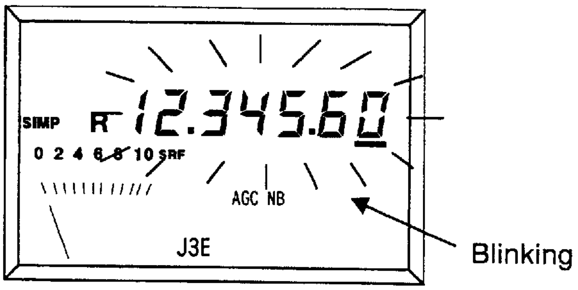
IF...	THEN...	ACTION
output power is reduced to low ("LOW" indication blinks)	power is automatically reduced to protect against overheating due to continuous transmission.	Wait until the unit returns to normal condition.
key input is not accepted	the FS-1552 is under control of external equipment.	"REM" appears when controlled by external equipment. Suspend operation of external equipment.
antenna coupler can't tune antenna	antenna may be disconnected or shorted to ground.	Check antenna connections.
	antenna is out of tunable length.	Recommended length is 6 to 15 meters.
	poor coupler ground.	Check coupler ground.
	breaker in coupler has tripped.	Check mains voltage and polarity. If they are normal, reset breaker.
	connection cable has loosened or is disconnected.	Check cable.

3.2 Error Indication

Introduction

When the FS-1552 detects a fault in the synthesizer unit (frequency unlocked), the frequency or channel number blinks.

Display



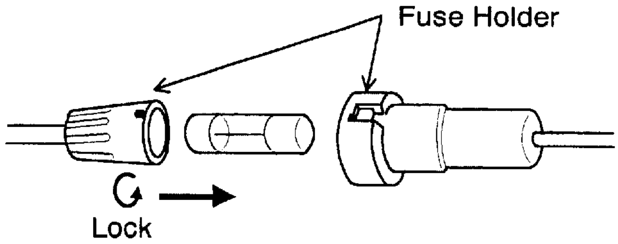
Action

Contact FURUNO agent or dealer.

4. Replacement of Fuses

Introduction

To protect the unit from reverse polarity and equipment fault, two 30 A fuses are provided in snap-in holders on the power cable.



Specifications

GENERAL

Communication System	Simplex or semi-duplex
Frequency Range	1.6 to 26.2 MHz (transmit) 0.1 to 30 MHz (receive)
Frequency Resolution	Transmit: 100 Hz Receive: 10 Hz
Class of Emission	J3E (USB) J3E (LSB) H3E (AM compatible) F1B F3C (weather facsimile, reception only)
Frequency Stability	±10 Hz
Number of Channels	User Channel: 200 ITU SSB/TELEX Channel 2182 kHz (single action)
Ambient Temperature Range	−20 to +55 ℃
Relative Humidity	93% at 40 ℃
Power Supply and Power Consumption	12 VDC +30 −10% Receive: 1.5 A Transmit speech: 18A Transmit (max.): 30 A
Frequency Selection	Key or dial encoder
Dimmer	Illumination for keyboard and LCD (four levels incl. off)
Dimensions and Mass	105 mm(W) × 256 mm(H) × 300 mm(D), 6.4 kg

RECEIVER

Receiving System

Double-conversion superhetelodyne
IF: 54.455 MHz and 455 kHz

Sensitivity

Input level to produce SINAD 20 dB

	J3E	H3E	F1B
0.1 to 0.3 MHz (*1)	+40	+54	
0.3 to 1.6 MHz (*1)	+25	+39	
1.6 to 4 MHz (*1)	+16	+30	+6
4 to 30 MHz (*2)	+3		−7
			(dB μV)

(*1): at 10 Ω + 250 pF (*2): at 50 Ω

Selectivity

2.4 kHz at −6 dB (J3E)
6.0 kHz at −6 dB (H3E)
300 Hz at −6 dB (F1B)

Spurious Response

Better than 70 dB

Intermodulation

Better than 80 dB

Audio Output

Internal speaker: 1 W/8 Ω
External speaker: 5 W/4 Ω
Line output: 0 dBm/600 Ω

Other Features

RF Gain: Adjustable
Squelch: ON/OFF, Activated by voice/signal strength
Dimmer: OFF/Low/Medium/High
Speaker: ON/OFF (Handset always alive)
AGC: ON/OFF } Changeable by
Noise blanker: always ON } system setting

TRANSMITTER

Output Impedance	50 ohms
Output Power	J3E/H3E: 150 W F1B: 150 W (FEC mode: reduced to 75 W) Tune: 10 W approx.
Power Reduction	60 to 70 W
Controls	Output HI/LOW, test/send of two-tone alarm generator, 2182 kHz single action key

ANTENNA COUPLER (AT-1500)

Tuning System	CPU controlled fully automatic tuning system
Frequency Range	1.6 to 26.2 MHz
Input Impedance	50 ohms (viewed from transceiver)
Antenna Required	6 to 15 meters wire or whip
Power Capability	150 W
Tuning Power	10 W
VSWR	Less than 1.5
Tuning Time	Within 2 to 15 seconds Within 0.5 seconds on pretuned bands
Dummy Load	Internal (10 ohms + 250 pF), optional supply
Power Requirement	15 VDC 0.6 A (supplied from transceiver)
Ambient Temperature	− 30 to +70 ℃ at 95% relative humidity
Construction	Waterproof plastic cabinet, stainless steel mount
Dimensions and Mass	267 mm(W) × 390mm(H) × 90mm(D), 2.9 kg approx.

APPENDIX

CUSTOM CHANNELS/FREQUENCIES - To be programmed by Furuno Dealers

CH NO	Ship Receive (kHz)	Ship Transmit (kHz)	Remarks

MF band working carrier frequencies - ref. US CFR 47 Part 80.371

Region	Ship Transmit (kHz)	Ship Receive (kHz)
East Coast	2031.5	2490.0
	2118.0	2514.0
	2126.0	2522.0
	2142.0	2538.0
	2166.0	2558.0
	2198.0	2590.0
	2366.0	2450.0
	2382.0	2482.0
	2390.0	2566.0
	2400.0	2400.0
	2406.0	2506.0
West Coast	2003.0	2450.0
	2009.0	2442.0
	2009.0	2566.0
	2031.5	2566.0
	2126.0	2522.0
	2206.0	2598.0
	2382.0	2466.0
	2430.0	2482.0

Region	Ship Transmit (kHz)	Ship Receive (kHz)
Gulf Coast	2009.0	2466.0
	2134.0	2530.0
	2142.0	2538.0
	2158.0 [1]	2550.0
	2166.0	2558.0
	2206.0	2598.0
	2366.0	2450.0
	2382.0	2482.0
	2430.0	2572.0
	2458.0	2506.0
Great Lakes [2]	2118.0	2514.0
	2158.0	2550.0
	2206.0	2582.0
Alaska	2131.0	2309.0
	2134.0	2312.0
	2240.0	2400.0
Hawaii	2134.0	2530.0
Caribbean	2009.0	2506.0
	2086.0 [3]	2585.0
	2134.0	2530.0
Guam	2009.0	2506.0

Above is not factory programmed, should be programmed by Furuno representatives.

[1] Unlimited use December 15 to April 1 [2] 2206 kHz for distress only.
[3] Limited to pep of 150 W.

NOTE: [1] to [3] indicate the outline only. Refer to the relative documentation for full detail. For other coast stations, consult with your dealers.

MF band SSB working carrier frequencies

CH NO	Ship Receive (kHz)	Ship Transmit (kHz)	CH NO	Ship Receive (kHz)	Ship Transmit (kHz)
241	1635	2060	271	1725	2069
242	1638	2063	272	1728	2072
243	1641	2066	273	1731	2075
244	1644	2069	274	1734	2078
245	1647	2072	275	1737	2081
246	1650	2075	276	1740	2084
247	1653	2078	277	1743	2087
248	1656	2081	278	1746	2090
249	1659	2084	279	1749	2093
250	1662	2087	280	1752	2096
251	1665	2090	281	1755	2099
252	1668	2093	282	1758	2102
253	1671	2096	283	1761	2105
254	1674	2099	284	1764	2108
255	1677	2102	285	1767	2111
256	1680	2105	286	1770	2114
257	1683	2108	287	1773	2117
258	1686	2111	288	1776	2120
259	1689	2114	289	1779	2123
260	1692	2117	290	1782	2126
261	1695	2120	291	1785	2129
262	1698	2123	292	1788	2132
263	1701	2126	293	1791	2135
264	1704	2129	294	1794	2138
265	1707	2132	295	1797	2060
266	1710	2135			
267	1713	2138			
268	1716	2060			
269	1719	2063			
270	1722	2066			

Above is factory programmed. A channel can be recalled by hitting the keys [RCL], [2], [4], [1], [ENT] for channel 241 as an example. Transmit and receive frequencies appear on the display. The channel number is checked by pressing the [ENT] key or by turning the FREQ/CH selector; the channel number is displayed in 4 digits, such as 2041, for a few seconds. (Additional zero is inserted automatically.)

4/6 MHz ITU SSB carrier frequencies (ITU RR APPENDIX 16)

The following frequencies are factory programmed.

4 MHz SSB (J3E)		
ITU CH NO	Ship RX	Ship TX
401	4357	4065
402	4360	4068
403	4363	4071
404	4366	4074
405	4369	4077
406	4372	4080
407	4375	4083
408	4378	4086
409	4381	4089
410	4384	4092
411	4387	4095
412	4390	4098
413	4393	4101
414	4396	4104
415	4399	4107
416	4402	4110
417	4405	4113
418	4408	4116
419	4411	4119
420	4414	4122
421	4417	4125
422	4420	4128
423	4423	4131
424	4426	4134
425	4429	4137
426	4432	4140
427	4435	4143
428	4351	4351
429	4354	4354
430	4146	4146
431	4149	4149
432 (01)	4000	4000
433 (02)	4003	4003
434 (03)	4006	4006
435 (04)	4009	4009
436 (05)	4012	4012
437 (06)	4015	4015
438 (07)	4018	4018
439 (08)	4021	4021
440 (09)	4024	4024
441 (10)	4027	4027
442 (11)	4030	4030
443 (12)	4033	4033
444 (13)	4036	4036
445 (14)	4039	4039
446 (15)	4042	4042
447 (16)	4045	4045
448 (17)	4048	4048
449 (18)	4051	4051
450 (19)	4054	4054
451 (20)	4057	4057
452 (21)	4060	4060

6 MHz SSB (J3E)		
ITU CH NO	Ship RX	Ship TX
601	6501	6200
602	6504	6203
603	6507	6206
604	6510	6209
605	6513	6212
606	6516	6215
607	6519	6218
608	6522	6221
609	6224	6224
610	6227	6227
611	6230	6230

A channel can be recalled by hitting the keys [RCL], [4], [0], [1], [ENT] for channel 401 as an example.

Transmit and receive frequencies appear on the display. To see the CH NO, press [ENT] or turn the FREQ/CH selector; the channel NO appears in 4 digits such as 4001 for a few sec.

CH NOs in ( ) are ITU NOs (RR Section C-1). Use 3-digit Furuno's designators for selection.

8 MHz ITU SSB carrier frequencies (ITU RR APPENDIX 16)

The following frequencies are factory programmed.

8 MHz SSB (J3E) - Duplex		
ITU CH NO	Ship RX	Ship TX
801	8719	8195
802	8722	8198
803	8725	8201
804	8728	8204
805	8731	8207
806	8734	8210
807	8737	8213
808	8740	8216
809	8743	8219
810	8746	8222
811	8749	8225
812	8752	8228
813	8755	8231
814	8758	8234
815	8761	8237
816	8764	8240
817	8767	8243
818	8770	8246
819	8773	8249
820	8776	8252
821	8779	8255
822	8782	8258
823	8785	8261
824	8788	8264
825	8791	8267
826	8794	8270
827	8797	8273
828	8800	8276
829	8803	8279
830	8806	8282
831	8809	8285
832	8812	8288
833	8291	8291
834	8707	8707
835	8710	8710
836	8713	8713
837	8716	8716
838	8294	8294
839	8297	8297

8 MHz SSB (J3E) - Simplex		
(ITU CH NO)	Ship RX	Ship TX
840 (01)	8101	8101
841 (02)	8104	8104
842 (03)	8107	8107
843 (04)	8110	8110
844 (05)	8113	8113
845 (06)	8116	8116
846 (07)	8119	8119
847 (08)	8122	8122
848 (09)	8125	8125
849 (10)	8128	8128
850 (11)	8131	8131
851 (12)	8134	8134
852 (13)	8137	8137
853 (14)	8140	8140
854 (15)	8143	8143
855 (16)	8146	8146
856 (17)	8149	8149
857 (18)	8152	8152
858 (19)	8155	8155
859 (20)	8158	8158
860 (21)	8161	8161

CH NOs in ( ) are ITU NOs (RR Section C-1). Use 3-digit Furuno's designators for selection in this radiotelephone.

A channel can be recalled by hitting the keys [RCL], [8], [0], [1], [ENT] for channel 801 as an example. Transmit and receive frequencies appear on the display. The channel number is checked by pressing the [ENT] key or by turning the FREQ/CH selector; the channel number is displayed in 4 digits, such as 8001, for a few seconds. (Additional zero is inserted automatically.)

12/16 MHz ITU SSB carrier frequencies (ITU RR APPENDIX 16)

12 MHz SSB (J3E)		
CH NO.	SHIP RX	SHIP TX
1201	13077	12230
1202	13080	12233
1203	13083	12236
1204	13086	12239
1205	13089	12242
1206	13092	12245
1207	13095	12248
1208	13098	12251
1209	13101	12254
1210	13104	12257
1211	13107	12260
1212	13110	12263
1213	13113	12266
1214	13116	12269
1215	13119	12272
1216	13122	12275
1217	13125	12278
1218	13128	12281
1219	13131	12284
1220	13134	12287
1221	13137	12290
1222	13140	12293
1223	13143	12296
1224	13146	12299
1225	13149	12302
1226	13152	12305
1227	13155	12308
1228	13158	12311
1229	13161	12314
1230	13164	12317
1231	13167	12320
1232	13170	12323
1233	13173	12326
1234	13176	12329
1235	13179	12332
1236	13182	12335
1237	13185	12338
1238	13188	12341
1239	13191	12344
1240	13194	12347
1241	13197	12350
1242	12353	12353
1243	12356	12356
1244	12359	12359
1245	12362	12362
1246	12365	12365

*Above is factory programmed.

16 MHz SSB (J3E)		
CH NO.	SHIP RX	SHIP TX
1601	17242	16360
1602	17245	16363
1603	17248	16366
1604	17251	16369
1605	17254	16372
1606	17257	16375
1607	17260	16378
1608	17263	16381
1609	17266	16384
1610	17269	16387
1611	17272	16390
1612	17275	16393
1613	17278	16396
1614	17281	16399
1615	17284	16402
1616	17287	16405
1617	17290	16408
1618	17293	16411
1619	17296	16414
1620	17299	16417
1621	17302	16420
1622	17305	16423
1623	17308	16426
1624	17311	16429
1625	17314	16432
1626	17317	16435
1627	17320	16438
1628	17323	16441
1629	17326	16444
1630	17329	16447
1631	17332	16450
1632	17335	16453
1633	17338	16456
1634	17341	16459
1635	17344	16462
1636	17347	16465
1637	17350	16468
1638	17353	16471
1639	17356	16474
1640	17359	16477
1641	17362	16480
1642	17365	16483
1643	17368	16486
1644	17371	16489
1645	17374	16492
1646	17377	16495
1647	17380	16498
1648	17383	16501
1649	17386	16504
1650	17389	16507

16 MHz SSB (J3E)		
CH NO.	SHIP RX	SHIP TX
1651	17392	16510
1652	17395	16513
1653	17398	16516
1654	17401	16519
1655	17404	16522
1656	17407	16525
1657	16528	16528
1658	16531	16531
1659	16534	16534
1660	16537	16537
1661	16540	16540
1662	16543	16543
1663	16546	16546

A channel can be recalled by hitting the keys [RCL], [1], [2], [0], [1], [ENT] for channel 1201 as an example. Transmit and receive frequencies appear on the display.

The CH NO is checked by pressing the [ENT] key or by turning the FREQ/ CH selector; it is displayed in 5 digits, such as 12001, for a few seconds. (Additional zero is inserted automatically.)

18/19, 22, 25/26 MHz ITU SSB carrier frequencies (ITU RR APPENDIX 16)

The following frequencies are factory programmed.

18/19 MHz SSB (J3E)		
CH NO.	SHIP RX	SHIP TX
1801	19755	18780
1802	19758	18783
1803	19761	18786
1804	19764	18789
1805	19767	18792
1806	19770	18795
1807	19773	18798
1808	19776	18801
1809	19779	18804
1810	19782	18807
1811	19785	18810
1812	19788	18813
1813	19791	18816
1814	19794	18819
1815	19797	18822
1816	18825	18825
1817	18828	18828
1818	18831	18831
1819	18834	18834
1820	18837	18837
1821	18840	18840
1822	18843	18843

A channel can be recalled by hitting the keys [RCL], [1], [8], [0], [1], [ENT] for channel 1801 as an example. Transmit and receive frequencies appear on the display.

The CH NO is checked by pressing the [ENT] key or by turning the FREQ/ CH selector; it is displayed in 5 digits, such as 18001, for a few seconds. (Additional zero is inserted automatically.)

22 MHz SSB (J3E)		
CH NO.	SHIP RX	SHIP TX
2201	22696	22000
2202	22699	22003
2203	22702	22006
2204	22705	22009
2205	22708	22012
2206	22711	22015
2207	22714	22018
2208	22717	22021
2209	22720	22024
2210	22723	22027
2211	22726	22030
2212	22729	22033
2213	22732	22036
2214	22735	22039
2215	22738	22042
2216	22741	22045
2217	22744	22048
2218	22747	22051
2219	22750	22054
2220	22753	22057
2221	22756	22060
2222	22759	22063
2223	22762	22066
2224	22765	22069
2225	22768	22072
2226	22771	22075
2227	22774	22078
2228	22777	22081
2229	22780	22084
2230	22783	22087
2231	22786	22090
2232	22789	22093
2233	22792	22096
2234	22795	22099
2235	22798	22102
2236	22801	22105
2237	22804	22108
2238	22807	22111
2239	22810	22114
2240	22813	22117
2241	22816	22120
2242	22819	22123
2243	22822	22126
2244	22825	22129
2245	22828	22132
2246	22831	22135
2247	22834	22138
2248	22837	22141
2249	22840	22144
2250	22843	22147

22 MHz SSB (J3E)		
CH NO.	SHIP RX	SHIP TX
2251	22846	22150
2252	22849	22153
2253	22852	22156
2254	22159	22159
2255	22162	22162
2256	22165	22165
2257	22168	22168
2258	22171	22171
2259	22174	22174
2260	22177	22177

25/26 MHz SSB (J3E)		
CH NO	Ship RX	Ship TX
2501	26145	25070
2502	26148	25073
2503	26151	25076
2504	26154	25079
2505	26157	25082
2506	26160	25085
2507	26163	25088
2508	26166	25091
2509	26169	25094
2510	26172	25097
2511	25100	25100
2512	25103	25103
2513	25106	25106
2514	25109	25109
2515	25112	25112
2516	25115	25115
2517	25118	25118

TELEX CHANNELS

MF BAND Telex FREQUENCY TABLE

The following frequencies are factory programmed.

CH NO.	Ship Receive (NBDP, DSC)	Ship Transmit (NBDP, DSC)	
201	2142.0	1607.0	
202	2142.5	1607.5	
203	2143.0	1608.0	
204	2143.5	1608.5	
205	2144.0	1609.0	
206	2144.5	1609.5	
207	2145.0	1610.0	
208	2145.5	1610.5	
209	2146.0	1611.0	
210	2146.5	1611.5	
211	2147.0	1612.0	
212	2147.5	1612.5	
213	2148.0	1613.0	
214	2148.5	1613.5	
215	2149.0	1614.0	NBDP/DSC
216	2149.5	1614.5	
217	2150.0	1615.0	
218	2150.5	1615.5	
219	2151.0	1616.0	
220	2151.5	1616.5	
221	2152.0	1617.0	
222	2152.5	1617.5	
223	2153.0	1618.0	
224	2153.5	1618.5	
225	2154.0	1619.0	
226	2154.5	1619.5	
227	2155.0	1620.0	
228	2155.5	1620.5	
229	2156.0	1621.0	
230	2156.5	1621.5	
231	2157.0	1622.0	
232	2157.5	1622.5	DSC
233	2158.0	1623.0	
234	2158.5	1623.5	
235	2159.0	1624.0	
236	2159.5	1624.5	

A channel can be recalled by hitting the keys [RCL], [2], [0], [1], [ENT] for channel 201 as an example. Transmit and receive frequencies appear on the display. The channel number is checked by pressing the [ENT] key or by turning the FREQ/CH selector; the channel number is displayed in 4 digits, such as 2001, for a few seconds. (Additional zero is inserted automatically.)

4/6 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE
(ITU RR APPENDIX 32)

4 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
4001	4210.5	4172.5
4002	4211.0	4173.0
4003	4211.5	4173.5
4004	4212.0	4174.0
4005	4212.5	4174.5
4006	4213.0	4175.0
4007	4213.5	4175.5
4008	4214.0	4176.0
4009	4214.5	4176.5
4010	4215.0	4177.0
4011	4177.5	4177.5
4012	4215.5	4178.0
4013	4216.0	4178.5
4014	4216.5	4179.0
4015	4217.0	4179.5
4016	4217.5	4180.0
4017	4218.0	4180.5
4018	4218.5	4181.0
4019	4219.0	4181.5
4020	4202.5	4202.5
4021	4203.0	4203.0
4022	4203.5	4203.5
4023	4204.0	4204.0
4024	4204.5	4204.5
4025	4205.0	4205.0
4026	4205.5	4205.5
4027	4206.0	4206.0
4028	4206.5	4206.5
4029	4207.0	4207.0
4030	4207.5	4207.5
4031	4219.5	4208.0
4032	4220.0	4208.5
4033	4220.5	4209.0

6 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
6001	6314.5	6263.0
6002	6315.0	6263.5
6003	6315.5	6264.0
6004	6316.0	6264.5
6005	6316.5	6265.0
6006	6317.0	6265.5
6007	6317.5	6266.0
6008	6318.0	6266.5
6009	6318.5	6267.0
6010	6319.0	6267.5
6011	6268.0	6268.0
6012	6319.5	6268.5
6013	6320.0	6269.0
6014	6320.5	6269.5
6015	6321.0	6270.0
6016	6321.5	6270.5
6017	6322.0	6271.0
6018	6322.5	6271.5
6019	6323.0	6272.0
6020	6323.5	6272.5
6021	6324.0	6273.0
6022	6324.5	6273.5
6023	6325.0	6274.0
6024	6325.5	6274.5
6025	6326.0	6275.0
6026	6326.5	6275.5
6027	6327.0	6281.0
6028	6327.5	6281.5
6029	6328.0	6282.0
6030	6328.5	6282.5
6031	6329.0	6283.0
6032	6329.5	6283.5
6033	6330.0	6284.0
6034	6330.5	6284.5
6035	6300.5	6300.5
6036	6301.0	6301.0
6037	6301.5	6301.5
6038	6302.0	6302.0
6039	6302.5	6302.5
6040	6303.0	6303.0

6 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
6041	6303.5	6303.5
6042	6304.0	6304.0
6043	6304.5	6304.5
6044	6305.0	6305.0
6045	6305.5	6305.5
6046	6306.0	6306.0
6047	6306.5	6306.5
6048	6307.0	6307.0
6049	6307.5	6307.5
6050	6308.0	6308.0
6051	6308.5	6308.5
6052	6309.0	6309.0
6053	6309.5	6309.5
6054	6310.0	6310.0
6055	6310.5	6310.5
6056	6311.0	6311.0
6057	6311.5	6311.5
6058	6312.0	6312.0
6059	6331.0	6312.5
6060	6331.5	6313.0
6061	6332.0	6313.5

Above is factory programmed.

8 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE

(ITU RR APPENDIX 32)

8 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
8001	8376.5	8376.5
8002	8417	8377
8003	8417.5	8377.5
8004	8418	8378
8005	8418.5	8378.5
8006	8419	8379
8007	8419.5	8379.5
8008	8420	8380
8009	8420.5	8380.5
8010	8421	8381
8011	8421.5	8381.5
8012	8422	8382
8013	8422.5	8382.5
8014	8423	8383
8015	8423.5	8383.5
8016	8424	8384
8017	8424.5	8384.5
8018	8425	8385
8019	8425.5	8385.5
8020	8426	8386
8021	8426.5	8386.5
8022	8427	8387
8023	8427.5	8387.5
8024	8428	8388
8025	8428.5	8388.5
8026	8429	8389
8027	8429.5	8389.5
8028	8430	8390
8029	8430.5	8390.5
8030	8431	8391
8031	8431.5	8391.5
8032	8432	8392
8033	8432.5	8392.5
8034	8433	8393
8035	8433.5	8393.5
8036	8434	8394
8037	8434.5	8394.5
8038	8435	8395
8039	8435.5	8395.5
8040	8436	8396
8041	8396.5	8396.5
8042	8397.0	8397.0
8043	8397.5	8397.5
8044	8398.0	8398.0
8045	8398.5	8398.5

Above is factory programmed.

8 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
8046	8399.0	8399.0
8047	8399.5	8399.5
8048	8400.0	8400.0
8049	8400.5	8400.5
8050	8401.0	8401.0
8051	8401.5	8401.5
8052	8402.0	8402.0
8053	8402.5	8402.5
8054	8403.0	8403.0
8055	8403.5	8403.5
8056	8404.0	8404.0
8057	8404.5	8404.5
8058	8405.0	8405.0
8059	8405.5	8405.5
8060	8406.0	8406.0
8061	8406.5	8406.5
8062	8407.0	8407.0
8063	8407.5	8407.5
8064	6312.0	8408.0
8065	6331.0	8408.5
8066	6331.5	8409.0
8067	6332.0	8409.5
8068	6332.5	8410.0
8069	6333.0	8410.5
8070	6333.5	8411.0
8071	6334.0	8411.5
8072	6334.5	8412.0
8073	6335.0	8412.5
8074	6335.5	8413.0
8075	6336.0	8413.5
8076	8414.0	8414.0
8077	8414.5	8414.5
8078	8436.5	8415.0
8079	8437.0	8415.5
8080	8437.5	8416.0

12 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE

The following frequencies are factory programmed.

12 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
12001	12579.5	12477.0
12002	12580.0	12477.5
12003	12580.5	12478.0
12004	12581.0	12478.5
12005	12581.5	12479.0
12006	12582.0	12479.5
12007	12582.5	12480.0
12008	12583.0	12480.5
12009	12583.5	12481.0
12010	12584.0	12481.5
12011	12584.5	12482.0
12012	12585.0	12482.5
12013	12585.5	12483.0
12014	12586.0	12483.5
12015	12586.5	12484.0
12016	12587.0	12484.5
12017	12587.5	12485.0
12018	12588.0	12485.5
12019	12588.5	12486.0
12020	12589.0	12486.5
12021	12589.5	12487.0
12022	12590.0	12487.5
12023	12590.5	12488.0
12024	12591.0	12488.5
12025	12591.5	12489.0
12026	12592.0	12489.5
12027	12592.5	12490.0
12028	12593.0	12490.5
12029	12593.5	12491.0
12030	12594.0	12491.5
12031	12594.5	12492.0
12032	12595.0	12492.5
12033	12595.5	12493.0
12034	12596.0	12493.5
12035	12596.5	12494.0
12036	12597.0	12494.5
12037	12597.5	12495.0
12038	12598.0	12495.5
12039	12598.5	12496.0
12040	12599.0	12496.5
12041	12599.5	12497.0
12042	12600.0	12497.5
12043	12600.5	12498.0
12044	12601.0	12498.5
12045	12601.5	12499.0
12046	12602.0	12499.5
12047	12602.5	12500.0
12048	12603.0	12500.5
12049	12603.5	12501.0
12050	12604.0	12501.5
12051	12604.5	12502.0
12052	12605.0	12502.5
12053	12605.5	12503.0
12054	12606.0	12503.5
12055	12606.5	12504.0

12 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
12056	12607.0	12504.5
12057	12607.5	12505.0
12058	12608.0	12505.5
12059	12608.5	12506.0
12060	12609.0	12506.5
12061	12609.5	12507.0
12062	12610.0	12507.5
12063	12610.5	12508.0
12064	12611.0	12508.5
12065	12611.5	12509.0
12066	12612.0	12509.5
12067	12612.5	12510.0
12068	12613.0	12510.5
12069	12613.5	12511.0
12070	12614.0	12511.5
12071	12614.5	12512.0
12072	12615.0	12512.5
12073	12615.5	12513.0
12074	12616.0	12513.5
12075	12616.5	12514.0
12076	12617.0	12514.5
12077	12617.5	12515.0
12078	12618.0	12515.5
12079	12618.5	12516.0
12080	12619.0	12516.5
12081	12619.5	12517.0
12082	12620.0	12517.5
12083	12620.5	12518.0
12084	12621.0	12518.5
12085	12621.5	12519.0
12086	12622.0	12519.5
12087	12520.0	12520.0
12088	12622.5	12520.5
12089	12623.0	12521.0
12090	12623.5	12521.5
12091	12624.0	12522.0
12092	12624.5	12522.5
12093	12625.0	12523.0
12094	12625.5	12523.5
12095	12626.0	12524.0
12096	12626.5	12524.5
12097	12627.0	12525.0
12098	12627.5	12525.5
12099	12628.0	12526.0
12100	12628.5	12526.5
12101	12629.0	12527.0
12102	12629.5	12527.5
12103	12630.0	12528.0
12104	12630.5	12528.5
12105	12631.0	12529.0
12106	12631.5	12529.5
12107	12632.0	12530.0
12108	12632.5	12530.5
12109	12633.0	12531.0
12110	12633.5	12531.5

12 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
12111	12634.0	12532.0
12112	12634.5	12532.5
12113	12635.0	12533.0
12114	12635.5	12533.5
12115	12636.0	12534.0
12116	12636.5	12534.5
12117	12637.0	12535.0
12118	12637.5	12535.5
12119	12638.0	12536.0
12120	12638.5	12536.5
12121	12639.0	12537.0
12122	12639.5	12537.5
12123	12640.0	12538.0
12124	12640.5	12538.5
12125	12641.0	12539.0
12126	12641.5	12539.5
12127	12642.0	12540.0
12128	12642.5	12540.5
12129	12643.0	12541.0
12130	12643.5	12541.5
12131	12644.0	12542.0
12132	12644.5	12542.5
12133	12645.0	12543.0
12134	12645.5	12543.5
12135	12646.0	12544.0
12136	12646.5	12544.5
12137	12647.0	12545.0
12138	12647.5	12545.5
12139	12648.0	12546.0
12140	12648.5	12546.5
12141	12649.0	12547.0
12142	12649.5	12547.5
12143	12650.0	12548.0
12144	12650.5	12548.5
12145	12651.0	12549.0
12146	12651.5	12549.5
12147	12652.0	12555.0
12148	12652.5	12555.5
12149	12653.0	12556.0
12150	12653.5	12556.5
12151	12654.0	12557.0
12152	12654.5	12557.5
12153	12655.0	12558.0
12154	12655.5	12558.5
12155	12656.0	12559.0
12156	12656.5	12559.5
12157	12560.0	12560.0
12158	12560.5	12560.5
12159	12561.0	12561.0
12160	12561.5	12561.5
12161	12562.0	12562.0
12162	12562.5	12562.5
12163	12563.0	12563.0
12164	12563.5	12563.5
12165	12564.0	12564.0

12/16 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE

The following frequencies are factory programmed.

12 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
12166	12564.5	12564.5
12167	12565.0	12565.0
12168	12565.5	12565.5
12169	12566.0	12566.0
12170	12566.5	12566.5
12171	12567.0	12567.0
12172	12567.5	12567.5
12173	12568.0	12568.0
12174	12568.5	12568.5
12175	12569.0	12569.0
12176	12569.5	12569.5
12177	12570.0	12570.0
12178	12570.5	12570.5
12179	12571.0	12571.0
12180	12571.5	12571.5
12181	12572.0	12572.0
12182	12572.5	12572.5
12183	12573.0	12573.0
12184	12573.5	12573.5
12185	12574.0	12574.0
12186	12574.5	12574.5
12187	12575.0	12575.0
12188	12575.5	12575.5
12189	12576.0	12576.0
12190	12576.5	12576.5
12191	12577.0	12577.0
12192	12577.5	12577.5
12193	12578.0	12578.0
12194	12578.5	12578.5

16 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
16001	16807.0	16683.5
16002	16807.5	16684.0
16003	16808.0	16684.5
16004	16808.5	16685.0
16005	16809.0	16685.5
16006	16809.5	16686.0
16007	16810.0	16686.5
16008	16810.5	16687.0
16009	16811.0	16687.5
16010	16811.5	16688.0
16011	16812.0	16688.5
16012	16812.5	16689.0
16013	16813.0	16689.5
16014	16813.5	16690.0
16015	16814.0	16690.5
16016	16814.5	16691.0
16017	16815.0	16691.5
16018	16815.5	16692.0
16019	16816.0	16692.5
16020	16816.5	16693.0
16021	16817.0	16693.5
16022	16817.5	16694.0
16023	16818.0	16694.5
16024	16695.0	16695.0
16025	16818.5	16695.5
16026	16819.0	16696.0
16027	16819.5	16696.5
16028	16820.0	16697.0
16029	16820.5	16697.5
16030	16821.0	16698.0
16031	16821.5	16698.5
16032	16822.0	16699.0
16033	16822.5	16699.5
16034	16823.0	16700.0
16035	16823.5	16700.5
16036	16824.0	16701.0
16037	16824.5	16701.5
16038	16825.0	16702.0
16039	16825.5	16702.5
16040	16826.0	16703.0
16041	16826.5	16703.5
16042	16827.0	16704.0
16043	16827.5	16704.5
16044	16828.0	16705.0
16045	16828.5	16705.5
16046	16829.0	16706.0
16047	16829.5	16706.5
16048	16830.0	16707.0
16049	16830.5	16707.5
16050	16831.0	16708.0
16051	16831.5	16708.5
16052	16832.0	16709.0
16053	16832.5	16709.5
16054	16833.0	16710.0
16055	16833.5	16710.5

16 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
16056	16834.0	16711.0
16057	16834.5	16711.5
16058	16835.0	16712.0
16059	16835.5	16712.5
16060	16836.0	16713.0
16061	16836.5	16713.5
16062	16837.0	16714.0
16063	16837.5	16714.5
16064	16838.0	16715.0
16065	16838.5	16715.5
16066	16839.0	16716.0
16067	16839.5	16716.5
16068	16840.0	16717.0
16069	16840.5	16717.5
16070	16841.0	16718.0
16071	16841.5	16718.5
16072	16842.0	16719.0
16073	16842.5	16719.5
16074	16843.0	16720.0
16075	16843.5	16720.5
16076	16844.0	16721.0
16077	16844.5	16721.5
16078	16845.0	16722.0
16079	16845.5	16722.5
16080	16846.0	16723.0
16081	16723.5	16846.5
16082	16724.0	16847.0
16083	16724.5	16847.5
16084	16725.0	16848.0
16085	16725.5	16848.5
16086	16726.0	16849.0
16087	16726.5	16849.5
16088	16727.0	16850.0
16089	16727.5	16850.5
16090	16728.0	16851.0
16091	16728.5	16851.5
16092	16729.0	16852.0
16093	16729.5	16852.5
16094	16730.0	16853.0
16095	16730.5	16853.5
16096	16731.0	16854.0
16097	16731.5	16854.5
16098	16732.0	16855.0
16099	16732.5	16855.5
16100	16733.0	16856.0
16101	16733.5	16856.5
16102	16739.0	16857.0
16103	16739.5	16857.5
16104	16740.0	16858.0
16105	16740.5	16858.5
16106	16741.0	16859.0
16107	16741.5	16859.5
16108	16742.0	16860.0
16109	16742.5	16860.5
16110	16743.0	16861.0

16 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE

The following frequencies are factory programmed.

16 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
16111	16743.5	16861.5
16112	16744.0	16862.0
16113	16744.5	16862.5
16114	16745.0	16863.0
16115	16745.5	16863.5
16116	16746.0	16864.0
16117	16746.5	16864.5
16118	16747.0	16865.0
16119	16747.5	16865.5
16120	16748.0	16866.0
16121	16748.5	16866.5
16122	16749.0	16867.0
16123	16749.5	16867.5
16124	16750.0	16868.0
16125	16750.5	16868.5
16126	16751.0	16869.0
16127	16751.5	16869.5
16128	16752.0	16870.0
16129	16752.5	16870.5
16130	16753.0	16871.0
16131	16753.5	16871.5
16132	16754.0	16872.0
16133	16754.5	16872.5
16134	16755.0	16873.0
16135	16755.5	16873.5
16136	16756.0	16874.0
16137	16756.5	16874.5
16138	16757.0	16875.0
16139	16757.5	16875.5
16140	16758.0	16876.0
16141	16758.5	16876.5
16142	16759.0	16877.0
16143	16759.5	16877.5
16144	16760.0	16878.0
16145	16760.5	16878.5
16146	16761.0	16879.0
16147	16761.5	16879.5
16148	16762.0	16880.0
16149	16762.5	16880.5
16150	16763.0	16881.0
16151	16763.5	16881.5
16152	16764.0	16882.0
16153	16764.5	16882.5
16154	16765.0	16883.0
16155	16765.5	16883.5
16156	16766.0	16884.0
16157	16766.5	16884.5
16158	16767.0	16885.0
16159	16767.5	16885.5
16160	16768.0	16886.0
16161	16886.5	16768.5
16162	16887.0	16769.0
16163	16887.5	16769.5
16164	16888.0	16770.0
16165	16888.5	16770.5

16 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
16166	16889.0	16771.0
16167	16889.5	16771.5
16168	16890.0	16772.0
16169	16890.5	16772.5
16170	16891.0	16773.0
16171	16891.5	16773.5
16172	16892.0	16774.0
16173	16892.5	16774.5
16174	16893.0	16775.0
16175	16893.5	16775.5
16176	16894.0	16776.0
16177	16894.5	16776.5
16178	16895.0	16777.0
16179	16895.5	16777.5
16180	16896.0	16778.0
16181	16896.5	16778.5
16182	16897.0	16779.0
16183	16897.5	16779.5
16184	16898.0	16780.0
16185	16898.5	16780.5
16186	16899.0	16781.0
16187	16899.5	16781.5
16188	16900.0	16782.0
16189	16900.5	16782.5
16190	16901.0	16783.0
16191	16901.5	16783.5
16192	16902.0	16784.0
16193	16902.5	16784.5
16194	16785.0	16785.0
16195	16785.5	16785.5
16196	16786.0	16786.0
16197	16786.5	16786.5
16198	16787.0	16787.0
16199	16787.5	16787.5
16200	16788.0	16788.0
16201	16788.5	16788.5
16202	16789.0	16789.0
16203	16789.5	16789.5
16204	16790.0	16790.0
16205	16790.5	16790.5
16206	16791.0	16791.0
16207	16791.5	16791.5
16208	16792.0	16792.0
16209	16792.5	16792.5
16210	16793.0	16793.0
16211	16793.5	16793.5
16212	16794.0	16794.0
16213	16794.5	16794.5
16214	16795.0	16795.0
16215	16795.5	16795.5
16216	16796.0	16796.0
16217	16796.5	16796.5
16218	16797.0	16797.0
16219	16797.5	16797.5
16220	16798.0	16798.0

16 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
16221	16798.5	16798.5
16222	16799.0	16799.0
16223	16799.5	16799.5
16224	16800.0	16800.0
16225	16800.5	16800.5
16226	16801.0	16801.0
16227	16801.5	16801.5
16228	16802.0	16802.0
16229	16802.5	16802.5
16230	16803.0	16803.0
16231	16803.5	16803.5
16232	16804.0	16804.0
16233	16804.5	16804.5
16234	16805.0	16805.0
16235	16805.5	16805.5
16236	16806.0	16806.0

18/19 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE

The following frequencies are factory programmed.

18/19 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
18001	19681.0	18870.5
18002	19681.5	18871.0
18003	19682.0	18871.5
18004	19682.5	18872.0
18005	19683.0	18872.5
18006	19683.5	18873.0
18007	19684.0	18873.5
18008	19684.5	18874.0
18009	19685.0	18874.5
18010	19685.5	18875.0
18011	19686.0	18875.5
18012	19686.5	18876.0
18013	19687.0	18876.5
18014	19687.5	18877.0
18015	19688.0	18877.5
18016	19688.5	18878.0
18017	19689.0	18878.5
18018	19689.5	18879.0
18019	19690.0	18879.5
18020	19690.5	18880.0
18021	19691.0	18880.5
18022	19691.5	18881.0
18023	19692.0	18881.5
18024	19692.5	18882.0
18025	19693.0	18882.5
18026	19693.5	18883.0
18027	19694.0	18883.5
18028	19694.5	18884.0
18029	19695.0	18884.5
18030	19695.5	18885.0
18031	19696.0	18885.5
18032	19696.5	18886.0
18033	19697.0	18886.5
18034	19697.5	18887.0
18035	19698.0	18887.5
18036	19698.5	18888.0
18037	19699.0	18888.5
18038	19699.5	18889.0
18039	19700.0	18889.5
18040	19700.5	18890.0
18041	19701.0	18890.5
18042	19701.5	18891.0
18043	19702.0	18891.5
18044	19702.5	18892.0
18045	19703.0	18892.5
18046	18893.0	18893.0
18047	18893.5	18893.5
18048	18894.0	18894.0
18049	18894.5	18894.5
18050	18895.0	18895.0

18/19 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
18051	18895.5	18895.5
18052	18896.0	18896.0
18053	18896.5	18896.5
18054	18897.0	18897.0
18055	18897.5	18897.5
18056	18898.0	18898.0
18057	18898.5	18898.5
18058	18899.0	18899.0
18059	18899.5	18899.5

22 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE

The following frequencies are factory programmed.

22 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
22001	22376.5	22284.5
22002	22377.0	22285.0
22003	22377.5	22285.5
22004	22378.0	22286.0
22005	22378.5	22286.5
22006	22379.0	22287.0
22007	22379.5	22287.5
22008	22380.0	22288.0
22009	22380.5	22288.5
22010	22381.0	22289.0
22011	22381.5	22289.5
22012	22382.0	22290.0
22013	22382.5	22290.5
22014	22383.0	22291.0
22015	22383.5	22291.5
22016	22384.0	22292.0
22017	22384.5	22292.5
22018	22385.0	22293.0
22019	22385.5	22293.5
22020	22386.0	22294.0
22021	22386.5	22294.5
22022	22387.0	22295.0
22023	22387.5	22295.5
22024	22388.0	22296.0
22025	22388.5	22296.5
22026	22389.0	22297.0
22027	22389.5	22297.5
22028	22390.0	22298.0
22029	22390.5	22298.5
22030	22391.0	22299.0
22031	22391.5	22299.5
22032	22392.0	22300.0
22033	22392.5	22300.5
22034	22393.0	22301.0
22035	22393.5	22301.5
22036	22394.0	22302.0
22037	22394.5	22302.5
22038	22395.0	22303.0
22039	22395.5	22303.5
22040	22396.0	22304.0
22041	22396.5	22304.5
22042	22397.0	22305.0
22043	22397.5	22305.5
22044	22398.0	22306.0
22045	22398.5	22306.5
22046	22399.0	22307.0
22047	22399.5	22307.5
22048	22400.0	22308.0
22049	22400.5	22308.5
22050	22401.0	22309.0

22 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
22051	22401.5	22309.5
22052	22402.0	22310.0
22053	22402.5	22310.5
22054	22403.0	22311.0
22055	22403.5	22311.5
22056	22404.0	22312.0
22057	22404.5	22312.5
22058	22405.0	22313.0
22059	22405.5	22313.5
22060	22406.0	22314.0
22061	22406.5	22314.5
22062	22407.0	22315.0
22063	22407.5	22315.5
22064	22408.0	22316.0
22065	22408.5	22316.5
22066	22409.0	22317.0
22067	22409.5	22317.5
22068	22410.0	22318.0
22069	22410.5	22318.5
22070	22411.0	22319.0
22071	22411.5	22319.5
22072	22412.0	22320.0
22073	22412.5	22320.5
22074	22413.0	22321.0
22075	22413.5	22321.5
22076	22414.0	22322.0
22077	22414.5	22322.5
22078	22415.0	22323.0
22079	22415.5	22323.5
22080	22416.0	22324.0
22081	22416.5	22324.5
22082	22417.0	22325.0
22083	22417.5	22325.5
22084	22418.0	22326.0
22085	22418.5	22326.5
22086	22419.0	22327.0
22087	22419.5	22327.5
22088	22420.0	22328.0
22089	22420.5	22328.5
22090	22421.0	22329.0
22091	22421.5	22329.5
22092	22422.0	22330.0
22093	22422.5	22330.5
22094	22423.0	22331.0
22095	22423.5	22331.5
22096	22424.0	22332.0
22097	22424.5	22332.5
22098	22425.0	22333.0
22099	22425.5	22333.5
22100	22426.0	22334.0

22 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
22101	22426.5	22334.5
22102	22427.0	22335.0
22103	22427.5	22335.5
22104	22428.0	22336.0
22105	22428.5	22336.5
22106	22429.0	22337.0
22107	22429.5	22337.5
22108	22430.0	22338.0
22109	22430.5	22338.5
22110	22431.0	22339.0
22111	22431.5	22339.5
22112	22432.0	22340.0
22113	22432.5	22340.5
22114	22433.0	22341.0
22115	22433.5	22341.5
22116	22434.0	22342.0
22117	22434.5	22342.5
22118	22435.0	22343.0
22119	22435.5	22343.5
22120	22436.0	22344.0
22121	22436.5	22344.5
22122	22437.0	22345.0
22123	22437.5	22345.5
22124	22438.0	22346.0
22125	22438.5	22346.5
22126	22439.0	22347.0
22127	22439.5	22347.5
22128	22440.0	22348.0
22129	22440.5	22348.5
22130	22441.0	22349.0
22131	22441.5	22349.5
22132	22442.0	22350.0
22133	22442.5	22350.5
22134	22443.0	22351.0
22135	22443.5	22351.5
22136	22352.0	22352.0
22137	22352.5	22352.5
22138	22353.0	22353.0
22139	22353.5	22353.5
22140	22354.0	22354.0
22141	22354.5	22354.5
22142	22355.0	22355.0
22143	22355.5	22355.5
22144	22356.0	22356.0
22145	22356.5	22356.5
22146	22357.0	22357.0
22147	22357.5	22357.5
22148	22358.0	22358.0
22149	22358.5	22358.5
22150	22359.0	22359.0

22, 25/26 MHz BAND ITU NBDP (Telex) FREQUENCY TABLE

The following frequencies are factory programmed.

22 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
22151	22359.5	22359.5
22152	22360.0	22360.0
22153	22360.5	22360.5
22154	22361.0	22361.0
22155	22361.5	22361.5
22156	22362.0	22362.0
22157	22362.5	22362.5
22158	22363.0	22363.0
22159	22363.5	22363.5
22160	22364.0	22364.0
22161	22364.5	22364.5
22162	22365.0	22365.0
22163	22365.5	22365.5
22164	22366.0	22366.0
22165	22366.5	22366.5
22166	22367.0	22367.0
22167	22367.5	22367.5
22168	22368.0	22368.0
22169	22368.5	22368.5
22170	22369.0	22369.0
22171	22369.5	22369.5
22172	22370.0	22370.0
22173	22370.5	22370.5
22174	22371.0	22371.0
22175	22371.5	22371.5
22176	22372.0	22372.0
22177	22372.5	22372.5
22178	22373.0	22373.0
22179	22373.5	22373.5
22180	22374.0	22374.0
22181	22374.5	22374.5
22182	22375.0	22375.0
22183	22375.5	22375.5

25/26 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
25001	26101.0	25173.0
25002	26101.5	25173.5
25003	26102.0	25174.0
25004	26102.5	25174.5
25005	26103.0	25175.0
25006	26103.5	25175.5
25007	26104.0	25176.0
25008	26104.5	25176.5
25009	26105.0	25177.0
25010	26105.5	25177.5
25011	26106.0	25178.0
25012	26106.5	25178.5
25013	26107.0	25179.0
25014	26107.5	25179.5
25015	26108.0	25180.0
25016	26108.5	25180.5
25017	26109.0	25181.0
25018	26109.5	25181.5
25019	26110.0	25182.0
25020	26110.5	25182.5
25021	26111.0	25183.0
25022	26111.5	25183.5
25023	26112.0	25184.0
25024	26112.5	25184.5
25025	26113.0	25185.0
25026	26113.5	25185.5
25027	26114.0	25186.0
25028	26114.5	25186.5
25029	26115.0	25187.0
25030	26115.5	25187.5
25031	26116.0	25188.0
25032	26116.5	25188.5
25033	26117.0	25189.0
25034	26117.5	25189.5
25035	26118.0	25190.0
25036	26118.5	25190.5
25037	26119.0	25191.0
25038	26119.5	25191.5
25039	26120.0	25192.0
25040	26120.5	25192.5
25041	25193.0	25193.0
25042	25193.5	25193.5
25043	25194.0	25194.0
25044	25194.5	25194.5
25045	25195.0	25195.0
25046	25195.5	25195.5
25047	25196.0	25196.0
25048	25196.5	25196.5
25049	25197.0	25197.0
25050	25197.5	25197.5

25/26 MHz TELEX		
CH NO.	SHIP RX	SHIP TX
25051	25198.0	25198.0
25052	25198.5	25198.5
25053	25199.0	25199.0
25054	25199.5	25199.5
25055	25200.0	25200.0
25056	25200.5	25200.5
25057	25201.0	25201.0
25058	25201.5	25201.5
25059	25202.0	25202.0
25060	25202.5	25202.5
25061	25203.0	25203.0
25062	25203.5	25203.5
25063	25204.0	25204.0
25064	25204.5	25204.5
25065	25205.0	25205.0
25066	25205.5	25205.5
25067	25206.0	25206.0
25068	25206.5	25206.5
25069	25207.0	25207.0
25070	25207.5	25207.5
25071	25208.0	25208.0
25072	26121.0	25208.5
25073	26121.5	25209.0
25074	26122.0	25209.5